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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/224,637	12/31/1998	YUVAL OFEK	E0295/7080	3449

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EXAMINER
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VITAL, PIERRE M

ART UNIT	PAPER NUMBER
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2188

DATE MAILED: 02/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/224,637

Applicant(s)

OFEK ET AL.

Examiner

Pierre M. Vital

Art Unit

2188

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18, 26 and 27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18, 26 and 27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 20, 2005 has been entered.

### ***Information Disclosure Statement***

2. The Information Disclosure Statement (IDS) received December 20, 2005 have been considered.

Where the limited translation of a foreign patent publication was provided, only the provided translation has been considered.

3. The Information Disclosure Statement filed December 20, 2005 fails to comply with 37 CFR 1.98(a)(3), because the Japanese Patent Application Public-disclosure No. 6-83682 official gazette is not in the English language and an explanation of its relevance has not been provided. Therefore this reference has not been considered.

Please see attached PTO-1449(s).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3, 7-8, 10 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chin et al (US 6,000,020) and Japanese Patent Application Public-disclosure (JPAP) No. 5-241933, September 21, 1993).

As per claim 1, Chin discloses a computer system comprising a host domain including a host computer [*workstations 22 and 24; Fig. 1*]; a storage domain coupled to the host domain through one or more communication links [*communication links 21 and 23 couple storage units 10, 26 and 40 to workstations 22 and 24; Fig. 1*], the storage domain comprising: a plurality of primary storage devices for the host domain, at least one of the primary storage devices to provide storage for the host computer [*storage devices 12 and 14; Fig. 1; workstations access the primary storage devices for read/write operations; col. 6, lines 17-20*]; a secondary storage device to provide backup storage for the host computer [*mirrored storage drives 32 and 34, tape 40; Fig. 1*]; a network, separate from each of the one or more communication links that couple the storage domain to the host domain [*transaction server 16 and backup server 30 couple loop 10 and 26 to workstation 22 and 24; Fig. 1*].

Although Chin discloses a network that couples the plurality of primary storage devices to the secondary storage device to permit one of the primary storage devices to access the secondary storage device through the network (*transaction server 16 directly copies data to mirrored storage 32 and 34; Fig. 1; data backup from primary drives 12 and 14 to mirrored drives 32 and 34 do not require using communication links; col. 7, line 40 - col. 8, line 15*), the reference does not teach or suggest that accessing the second storage device without using any of the one or more communication links that couple the storage domain to the host domain and that communication between the plurality of primary storage devices and the secondary storage device can occur over the network simultaneously with communication between the host domain and the storage domain through the one or more communication links.

JPAP discloses that it is a well-known technique to couple a backup unit directly to a storage device so as to backup data (i.e., to permit one of the primary storage devices to access the secondary storage device through the network without using any of the one or more communication links that couple the storage domain to the host domain) (see provided translation of reference 4).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify the system of Chin to include the network and communication links in the manner described by JPAP because it was well known to

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provide a file maintenance system capable of averting adverse effects such as file corruption as taught by JPAP.

As per claim 2, Chin discloses a primary storage device coupled directly to a secondary storage device [col. 7, lines 56-59].

As per claim 3, Chin discloses at least one of the primary storage devices is a cached disk array [col. 45, lines 55-62; col. 49, lines 55-57].

As per claim 7, Chin discloses transferring a first logical object from one of the primary storage devices directly to the second storage device directly over a first connection [col. 7, lines 56-59].

As per claim 8, Chin discloses automatically establishing a second connection through a network between a first primary storage element and the secondary storage element through which a first logical object can be transferred from the first primary storage element to the secondary storage element [col. 8, lines 1-15]; and transferring a second logical object from one of the primary storage devices directly to the second storage device directly over a second connection [col. 8, lines 16-30].

As per claim 10, Chin discloses the use of a tape library unit [*tape 40*; Fig. 1], which is well known in the state of the art.

As per claim 26, Chin discloses transferring data from the first one of the storage elements to the secondary storage element without involving the host computer (data is mirrored transaction server 16 can address OPN primitives directly to the mirrored drives; column 7, lines 56-59).

6. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chin et al (US 6,000,020) and Japanese Patent Application Public-disclosure (JPAP) No. 5-241933, September 21, 1993) and Beardsley et al. (US 5,680,580).

As per claim 4, Chin discloses the claimed invention as detailed above in the previous paragraphs. However, Chin fails to specifically teach that a secondary storage device including a plurality of ports coupled to the network to send and receive data on the network in parallel as recited in the claims.

Beardsley discloses a secondary storage device including a plurality of ports coupled to the network to send and receive data in parallel [col. 4, lines 63-66; col. 14, lines 20-21] to improve system throughput by initiating multiple request connects concurrently (see abstract). Since the technology for implementing a secondary storage device including a plurality of ports was well known, and since a secondary storage device including a plurality of ports improve system throughput by initiating multiple request connects concurrently, an artisan would have been motivated to implement

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improve system throughput by initiating multiple request connects concurrently in the system of Chin.

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify the system of Chin to include a secondary storage device including a plurality of ports because a secondary storage device including a plurality of ports was well known to improve system throughput by initiating multiple request connects concurrently as taught by Beardsley.

As per claim 5, the combination of Chin and Beardsley fails to teach a secondary storage device comprising data movers as recited in the claims. Official Notice is taken that both the concept and the advantages of providing for storage devices, which include data movers, are well known and expected in the art.

It would have been obvious to one of ordinary skill in the art to have included the data movers in the combination of Chin and Beardsley as these data movers are known to provide a means for communication between the backup devices and the network.



7. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chin et al (US 6,000,020) and Japanese Patent Application Public-disclosure (JPAP) No. 5-241933, September 21, 1993) and Nikkei Computer, April 27, 1998 (pp. 122-125, No. 442).

As per claim 6, Chin discloses the claimed invention as detailed above in the previous paragraphs. However, Chin fails to specifically teach that the plurality of host computers are heterogeneous and that they comprise a first host computer comprising a first platform and a second host computer comprising a second platform different from the first platform as recited in the claim.

Nikkei discloses a plurality of host computers are heterogeneous and that they comprise a first host computer comprising a first platform and a second host computer comprising a second platform different from the first platform (see provided translation of Reference 6).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify the system of Tamer to include a heterogeneous plurality of host computers and a multi-platform as taught by Nikkei, so that readout can be performed at high speed once data is converted as taught by Nikkei.

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chin et al (US 6,000,020) and Japanese Patent Application Public-disclosure (JPAP) No. 5-241933, September 21, 1993) and Idleman et al (US 6,154,850).

As in claim 9, Chin and JPAP disclose the claimed invention as detailed above in the previous paragraphs. However, Chin and JPAP do not specifically teach forming an abstract block set from a logical object as required in the claim.

Idleman discloses forming an abstract block set from a logical object (i.e., data groups including logical data blocks) (col. 20, lines 29-41).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify the system of Chin and JPAP to include forming an abstract block set from a logical object as taught by Idleman, in order to maximize the use of paths and maintain the full availability of the data as taught by Idleman.

9. Claims 11-12, 14-18 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamer et al (US 6,035,412) and Nikkei Computer, April 27, 1998 (pp. 122-125, No. 442).

As per claim 11, Tamer discloses a plurality of host computers [*host processors 8(a)..8(n)*; Fig. 2; col. 6, lines 37-40]; a plurality of primary storage devices to receive and store data in the devices; each primary storage device being associated with at least one of the host computers [*host accesses the source volumes for read/write operations*; Fig. 1; col. 4, line 65- col. 5, line 12]; a secondary storage device to receive and store data in the device coupled to a plurality of the primary storage devices [*slave unit 4, tape silo 12*; Fig. 1], the secondary storage device being configured to receive backup data from each of the host computers [*slave unit 4, tape silo 12*; Fig. 1]; a single backup controller capable of backing up data stored from both the first and second host computers on the plurality of primary storage devices to the secondary storage device [*backup console 16 controls and coordinate backup*; col. 4, lines 49-53].

However, Tamer fails to specifically teach that the plurality of host computers are heterogeneous and that they comprise a first host computer comprising a first platform and a second host computer comprising a second platform different from the first platform as recited in the claim.

Nikkei discloses a plurality of host computers are heterogeneous and that they comprise a first host computer comprising a first platform and a second host computer comprising a second platform different from the first platform (see provided translation of Reference 6).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify the system of Tamer to include a heterogeneous plurality of host computers and a multi-platform as taught by Nikkei, so that readout can be performed at high speed once data is converted as taught by Nikkei.

As per claim 12, Tamer discloses at least one of the primary storage devices is a cached disk array [col. 6, lines 59-65].

As per claim 14, Tamer discloses a secondary storage device including a plurality of ports coupled to the network to send and receive data on the network in parallel [*writes in R1 volumes are automatically copied to R2 volumes*; col.5, lines 6-19; col. 6, lines 17-65].

As per claim 15, the combination of Tamer and Nikkei fails to teach a secondary storage device comprising data movers as recited in the claims. Official Notice is taken that both the concept and the advantages of providing for storage devices, which include data movers, are well known and expected in the art.

It would have been obvious to one of ordinary skill in the art to have included the data movers in the combination of Tamer and Nikkei as these data movers are known to provide a means for communication between the backup devices and the network.

As per claim 16, Tamer discloses transferring a first logical object from one of the primary storage devices directly to the second storage device directly over a first connection [*master storage unit 2 is directly coupled to slave unit 4 by communication link 6; Fig. 1A*].

As per claim 17, Tamer discloses transferring a second logical object from one of the primary storage devices directly to the second storage device directly over a second connection [*master storage unit 2 is directly coupled to slave unit 4 by communication link 6; Fig. 1A*].

As per claim 18, Tamer discloses the use of a tape library unit [*tape silo 12; Fig. 1*], which is well known in the state of the art.

As per claim 27, Tamer discloses the secondary storage device is configured to receive the back up data from at least one of the primary storage devices without involving one or more of the host computers (data is mirrored in a manner that is transparent to the host; column 7, lines 15-19).

10. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tamer et al (US 6,035,412) and Nikkei Computer, April 27, 1998 (pp. 122-125, No. 442) and Idleman et al (US 6,154,850).

As in claim 13, Tamer and Nikkei disclose the claimed invention as detailed above in the previous paragraphs. However, Tamer and Nikkei do not specifically teach forming an abstract block set from a logical object as required in the claim.

Idleman discloses forming an abstract block set from a logical object (i.e., data groups including logical data blocks) (col. 20, lines 29-41).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify the system of Tamer and Nikkei to include forming an abstract block set from a logical object as taught by Idleman, in order to maximize the use of paths and maintain the full availability of the data as taught by Idleman.


### ***Conclusion***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pierre M. Vital whose telephone number is (571) 272-4215. The examiner can normally be reached on 8:30 am - 6:00 pm, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on (571) 272-4210. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

February 9, 2006

  
**PIERRE VITAL**  
**PRIMARY EXAMINER**